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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/753,357	12/29/2000	Claus P. Jensen	10559/381001/P10187	9721
20985	7590	12/17/2004	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			MACE, BRAD THOMAS	
			ART UNIT	PAPER NUMBER
			2663	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/753,357

Applicant(s)

JENSEN, CLAUD P.

Examiner

Brad T. Mace

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 16-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 16, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 2002/0062381 (Gargiulo et al.).

#### Regarding claims 1, 16:

Gargiulo discloses setting a time interval between a first set of query messages to each of a plurality of routers to a number greater than a querier timeout period used by said plurality of routers, where said querier timeout period transitions each of said plurality of routers into a querier (pg. 3-4, paragraph [0041]. Each node (router) receives a query and has a corresponding calculated query timeout period (querier timeout period, in which the calculated query timeout period may be of any time period, such as about 255 seconds, greater than 255 seconds, or about 300 seconds), where each node (router) sends its response before the timeout period has expired (and

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during which a designated node is listening for responses, hence the next query messages are not sent until a time greater than the query timeout period). Since each node (router) during the timeout period responds before the timeout period has expired, each node (router) is transitioned into a querier (as indicated by each node (router) sending a response during this time period));

revealing presence of said each of said plurality of routers sending a second set of query messages (pg. 3-4, paragraph [0041], where each node (router) sends out a response, hence indicating the presence of each node (router)); and

sending membership report messages to said plurality of routers (pg. 4, paragraphs [0043]-[0045], where each node (router) may identify itself to other nodes (routers) by sending a broadcast message (membership report message), and each node (router) may build a list of nodes (routers) that responded to the original query).

Regarding claim 18:

Gargiulo discloses revealing one or more non-querier multicast routers by holding back at least one query message and forcing the one or more non-querier multicast routers to assume a querier state (pg. 3-4, paragraph [0041]. Each node (multicast router) receives a query and has a corresponding calculated query timeout period (querier timeout period), where each node (multicast router) sends its response before the timeout period has expired (and during which a designated node is listening for responses, hence the next query messages are held back until a time greater than the query timeout period). Since each node (multicast router) during the timeout period responds before the timeout period has expired, each node (multicast router) is

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transitioned (forced) into a querier (as indicated by each node (multicast router) sending a response during this time period));

sending membership report messages to the revealed one or more non-querier multicast routers (pg. 4, paragraphs [0043]-[0045], where each node (multicast router) may identify itself to other nodes (multicast routers) by sending a broadcast message (membership report message), and each node (multicast router) may build a list of nodes (multicast routers) that responded to the original query (revealed multicast routers)).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,370,142 (Pitcher et al.) in view of U.S. Publication No. 2002/0062381 (Gargiulo et al.).

Regarding claim 10:

Pitcher discloses an IGMP switch system (col.5, lines 28-37), comprising:  
a plurality of routers to route Internet Protocol (IP) data and that generate query messages (see Figure 4 and col. 6, lines 17-23);  
a plurality of hosts to send and receive IP data and that generate report messages (col. 5, lines 28-37; and col. 1, lines 43-62);

and an IGMP pruning switch (col. 4, lines 55-58 and see Figure 4) having a plurality of switch port, said switch ports to provide interfacing of said plurality of hosts (end-stations) and routers (see Figure 4), where said IGMP pruning switch provides query messages and reports messages to be transferred in such states as to allow the determination of presence of said plurality of routers and hosts (col. 5, lines 31-34; col. 6, lines 24-26; and col. 6, lines 39-42, hence the determination of the presence of routers and hosts (end stations) is known through the query and report forwarding);

However, Pitcher does not disclose expressly wherein said pruning switch determines whether each switch port is a host or router port in a discovery state by setting a time interval between a set of query messages to a number greater than a querier timeout period so that said each switch port reveals its state.

Gargiulo discloses setting a time interval between a set of query messages to a number greater than a querier timeout period so that each node (switch port) reveals its state (presence) (pg. 3-4, paragraph [0041]. Each node (router) receives a query and has a corresponding calculated query timeout period (querier timeout period), where each node (router) sends its response before the timeout period has expired (and during which a designated node is listening for responses, hence the next query messages are not sent until a time greater than the query timeout period). Since each node (router) during the timeout period responds before the timeout period has expired, each node (router) is transitioned into a querier (as indicated by each node (router) sending a response during this time period).

A person of ordinary skill in the art would have been motivated to employ Gargiulo in Pitcher in order to obtain an IGMP pruning switch that sets a time interval between a set of query messages to a number greater than a querier timeout period so as to reveal whether a switch port is a host or router port. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Gargiulo with Pitcher (collectively Pitcher-Gargiulo) to obtain the invention as specified in claim 10. The suggestion/motivation to do so would have been to obtain the identity of each of the nodes (routers or hosts) so as to build a list of nodes (router or hosts) that are on the network.

6. Claims 1-12, 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,370,142 (Pitcher et al.) in view of U.S. Patent No. 6,169,741 (LeMaire et al.).

Regarding claims 1, 2, 3, 4, 16, 17:

Pitcher discloses setting a time interval between a first set of query messages to each of a plurality of routers to a number greater than a querier timeout period used by said plurality of routers (col. 11, lines 12-17, where query messages are periodically sent to ports (corresponding to routers), and col. 7, lines 23-26, where the other\_querier\_present timer is the length of time (which may be of any time period, such as about 255 seconds (where a querier timeout period can be that of 255 seconds), greater than 255 seconds, or about 300 seconds) to determine whether or not a querier device is present (and during which time listening for a response occurs, hence the next

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query messages are not sent until a time greater than the other\_querier\_present time period));

revealing presence of said each of said plurality of routers sending a second set of query messages (col. 10, lines 26-28); and

sending membership report messages to said plurality of routers (col. 10, lines 61-63, where the ports correspond to routers).

However, Pitcher does not disclose expressly where the querier timeout period transitions each of said plurality of routers into a querier.

LeMaire discloses where the querier timeout period transitions each of said plurality of routers into a querier (col. 11, lines 54-60, where during a timeout interval (in a router discovery phase), all multicast routers transmit multicast router-to-router discovery packets (MRRDPs), hence transitioning all routers into a querier (and determining the presence of all the routers)).

A person of ordinary skill in the art would have been motivated to employ LeMaire in Pitcher in order to discover all (querier and non-querier) routers on a network. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine LeMaire with Pitcher (collectively Pitcher-LeMaire) in order to obtain the invention as specified in claim 1, claims 1 and 2, claims 1, 2, and 3, claims 1, 2, and 4, claim 16, and claims 16 and 17. The suggestion/motivation to do so would have been to detect both querier and non-querier routers on a network, not just querier routers.

Regarding claim 5:



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Pitcher further discloses wherein said second set of query messages includes queries to determine which host groups have members on directly attached networks (col. 6, lines 17-28, and col. 6, lines 6-9, where IP multicast group membership reports is produced by end-stations (hosts)).

Regarding claim 6:

Pitcher further discloses wherein said report messages include a report from each host group (col. 6, lines 35-42, where the membership reports includes reports from end-stations (host groups)).

Regarding claim 7:

Pitcher further discloses wherein said sending membership report messages includes selecting a host from said each host group to send said report (col. 3, lines 63-67, where an end-station (host) transmits a multicast group membership report).

Regarding claim 8:

Pitcher further discloses wherein said selected host starts a randomly chosen report delay timer (col. 6, lines 5-7, where each end-station (host) waits for a random time interval before responding).

Regarding claim 9:

Pitcher further discloses wherein said randomly chosen report delay timer is reset to a new random value when another report is heard from same host group (col. 6, lines 1-7, hence to avoid duplicate membership reports, the report delay timer is reset to a new random value for the next query, in the same manner as when the end-stations first set up a random time interval).

Regarding claim 10:

Pitcher discloses an IGMP switch system (col.5, lines 28-37), comprising:

a plurality of routers to route Internet Protocol (IP) data and that generate query messages (see Figure 4 and col. 6, lines 17-23);

a plurality of hosts to send and receive IP data and that generate report messages (col. 5, lines 28-37; and col. 1, lines 43-62);

and an IGMP pruning switch (col. 4, lines 55-58 and see Figure 4) having a plurality of switch port, said switch ports to provide interfacing of said plurality of hosts (end-stations) and routers (see Figure 4), where said IGMP pruning switch provides query messages and reports messages to be transferred in such states as to allow the determination of presence of said plurality of routers and hosts (col. 5, lines 31-34; col. 6, lines 24-26; and col. 6, lines 39-42, hence the determination of the presence of routers and hosts (end stations) is known through the query and report forwarding);

However, Pitcher does not discloses expressly wherein said pruning switch determines whether each switch port is a host or router port in a discovery state by setting a time interval between a set of query messages to a number greater than a querier timeout period so that said each switch port reveals its state.

LeMaire discloses determining whether each switch port is a host or router port in a discovery state by setting a time interval between a set of query messages to a number greater than a querier timeout period so that each switch port reveals its state (col. 11, lines 54-60, router discovery phase, where during a timeout interval (the maximum of the periodic rates at which the MRRDP packets are typically issued by

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multicast routers, hence greater than a querier timeout period), all multicast routers transmit multicast router-to-router discovery packets (MRRDPs), hence transitioning all routers into a querier (and determining the presence of all the routers (and non-router ports (hosts)) on the network)).

A person of ordinary skill in the art would have been motivated to employ LeMaire in Pitcher in order to obtain an IGMP pruning switch that sets a time interval between a set of query messages to a number greater than a querier timeout period so as to reveal whether a switch port is a host or router port. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine LeMaire with Pitcher (collectively Pitcher-LeMaire) to obtain the invention as specified in claim 10. The suggestion/motivation to do so would have been to discover the state of each port by identifying all corresponding router ports.

Regarding claim 11:

Pitcher further discloses wherein said pruning switch allows said plurality of hosts to issue report messages in a host state (col. 6, lines 35-42, where end stations (hosts) transmit report messages, forwarded by the switch).

Regarding claim 12:

Pitcher further discloses wherein said pruning switch allows said plurality of routers to issue query messages in a router state (col. 6, lines 17-23).

Regarding claim 18:

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Pitcher discloses revealing one or more querier multicast routers by listening for queries during the length of a `other_querier_present` timer (query timeout period) (col. 10, lines 26-28 and col. 7, lines 23-26), and

sending membership report messages to the revealed one or more querier multicast routers (col. 10, lines 61-63, where the ports correspond to routers).

However, Pitcher does not disclose expressly revealing one or more non-querier multicast routers by holding back at least one query message and forcing the one or more non-querier multicast routers to assume a querier state.

LeMaire discloses revealing one or more non-querier multicast routers by holding back at least one query message and forcing the one or more non-querier multicast routers to assume a querier state (col. 11, lines 54-60, router discovery phase, where during a timeout interval (hence holding back a next query message until the timeout interval has expired), all multicast routers transmit multicast router-to-router discovery packets (MRRDPs), hence transitioning (forcing) all routers (querier and non-querier) into a querier (and determining the presence of all the routers (querier and non-querier))).

A person of ordinary skill in the art would have been motivated to employ LeMaire in Pitcher in order to discover all (querier and non-querier) routers on a network (and hence also send membership reports to the non-querier multicast routers). At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine LeMaire with Pitcher (collectively Pitcher-LeMaire) in order to obtain the invention as specified in claim 18.

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The suggestion/motivation to do so would have been to detect both querier and non-querier routers on a network, not just querier routers.

Regarding claim 19:

Pitcher further discloses wherein said membership report messages include a report from each of multiple host groups (col. 6, lines 35-42, where the membership reports includes reports from end-stations (host groups)).

Regarding claim 20:

Pitcher further discloses wherein said sending membership report messages includes selecting a host from each of the multiple host groups to send the report (col. 3, lines 63-67, where an end-station (host) transmits a multicast group membership report).

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brad T. Mace whose telephone number is (571) 272-3128. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

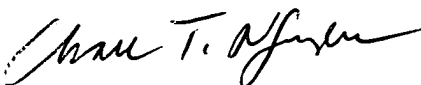
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btm

Brad T. Mace  
Examiner  
Art Unit 2663

btm  
December 3, 2004

  
CHAU NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600